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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677.966	10/02/2003	Cyril Allouche	14XZ126398	9272

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11/21/2006

EXAMINER
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SMITH, JEFFREY S

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/677,966

**Applicant(s)**

ALLOUCHE, CYRIL

**Examiner**

Jeffrey S. Smith

**Art Unit**

2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/2/3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: Throughout the specification, applicant refers to images taken at "date t" and "date t-1." These terms should be changed to "time t" and "time t-1" because presumably both images are taken at different times on the same date.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "the space-time filtering" lacks antecedent basis. Also, "filtering of in radiography" should be either "filtering in radiography" or "filtering of radiography images."

In claims 1 and 55-57, "the coefficients," "the intensity," "the difference," and "the filtered value" lack antecedent basis.

In claim 2, "U'p" should be "Up" to have antecedent basis from the equation in claim 1.

In claim 3, "the difference  $\epsilon$ ," "the value," and "the function" lack antecedent basis.

In claims 19-25, "date t" and "date t-1" should be "time t" and "time t-1."

Claims 38 and 39 are identical. One of these should be amended or canceled.

In claim 42, the term "wherein D is greater than 5" conflicts with the term "wherein D is equal to 5" in parent claim 26.

In claim 57, "foor" should be "for."

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 55-57 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 55 recites a computer program per se, not embodied on any tangible computer readable medium, and is therefore non-statutory.

In claim 56, the term "computer useable medium" should be "computer readable medium." Also, in claims 56 and 57, "computer readable program code means embodied in the medium" should be "computer readable program code means stored in the medium."

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-25 and 43-57 are rejected under 35 U.S.C. 102(b) as being anticipated by admitted prior art on pages 1 and 2 of the application.

For claims 1 and 55-57, each claim recites a convolution core with a dimension D. This is broad enough to include a dimension D of 1. In this case, L is zero. Also, k and l are zero, the coefficients  $U_p$  and  $U_p'$  are one, and N is two. The filtered value  $F(x,y)$  then becomes the average of the two images  $I(x, y)$  and  $I'(x, y)$ , as discussed on page 2 of the application.

For claims 2-7,  $U_p$  and  $U_p'$  become 1 when k and l are 0.

For claims 8-12, when gamma equals 1, then the filtered intensity  $F'(x, y)$  is not part of the equation, because  $1-\gamma$  becomes  $1-1$ , which sets this term to 0. In other words, when gamma is 1, then the second image  $F'(x, y)$  is multiplied by 0, which removes this image from the equation.

For claims 13-18, where  $D$  is one and  $\gamma$  is zero, the filtered value is not filtered at all, because only the original pixel is present in the filtering equation. In other words, when  $\gamma$  is zero, the first image is removed from the convolution equation.

For claims 19-25, the first and second images of the admitted prior art are successive sequences of images.

For claims 43-52, which recite "wherein  $D$  is an odd number," one is an odd number.

For claim 53, when  $D$  is one, the space-time convolution filter is an averaging process as shown in the prior art.

For claim 54, the prior art uses the filter in radiography.

Claims 1-26, 31-34, 40-52, and 55-57 are rejected under 35 U.S.C. 102(a) and (e) based on U.S. Patent No. 6,728,415 issued to Shaw ("Shaw").

For claims 1, 8-25, 40-41, 48-50, and 55-57, when  $\gamma$  is zero, there is only one image present in the convolution equation of claim 1. (This interpretation is reasonable in light of dependent claims 13-18, which explicitly set  $\gamma$  equal to zero so that only one image is present in the convolution equation of claim 1.) This reads on the convolution shown in Shaw.

For claims 2-7,  $U_p$  and  $U'_p$  become 1 when  $D$  is 1 and  $k$  and  $l$  are 0.

For claims 26, 31-33, 42, and 51, which recite "wherein  $D$  is equal to 5", the convolution core of the equation in claim 1 has a dimension of 5. When  $\gamma$  is zero, then there is one image that is processed with the convolution core having dimension 5.

This dimension is shown in Shaw in Table 1, where the convolution core has a dimension of 5. (See column 2 lines 35-30.)

For claims 34 and 52, which recite "wherein D is greater than 5," this is disclosed by Shaw. (See column 1 lines 45-50, which states that the core (called a filter or kernel in Shaw) can have a rectangular configuration of any size.

For claims 43-52, Shaw has a convolution core where D is an odd number.

### ***Allowable Subject Matter***

Claims 27-30 and 35-38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,440,647 issued to Floyd, Jr. et al. discusses examples of convolution used in radiography. See for example columns 2-4.

U.S. Patent Application Publication No. 2002/0154728 by Morit  et al. shows an example of a convolution unit used in radiography. See for example figure 11.

"Scatter-glare correction using a convolution algorithm with variable weighting" by Naimuddin et al. discloses a spatially variable weighting factor for a convolved version of a radiographic image.

"A regional convolution kernel algorithm for scatter correction in dual-energy images: Comparison to single-kernel algorithms" by Kruger et al. discloses a dual-kernel convolution algorithm for x-ray projection radiography.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey S. Smith whose telephone number is 571 270-1235. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on 571 270-1245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSS  
JSS November 7, 2006

  
MARVIN LATEEF  
SUPERVISORY PATENT EXAMINER